



**NOAA
FISHERIES**

**Southeast
Fisheries
Science Center**

Overview of SEFSC fishery-dependent commercial and recreational data collection

SEFSC Program Review

June 4, 2013

Talk structure

- Overview
 - Who (customers and partners)
 - What are the fisheries
 - What is collected (types of data needed)
- Data inputs for assessments and associated issues by data type
- Summary of major data collection issues
- Overview of primary data collection programs

Customers, Partners and Stocks

2 RFMOs, 3 councils, HMS
2 regional commissions
8 states, 2 territories
SERO, NERO, NEFSC, S&T

Gulf of Mexico FMC
GSMFC, 5 states

South Atlantic FMC
ACCSP, NERO, 4 states

Highly Migratory Species
Int. Comm. Cons. Atl. Tuna
GSMFC, ACCSP, HMS, NEFSC, SERO
18 states, 2 territories

Caribbean FMC
GSMFC, 2 territories



NOAA FISHERIES

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Southeast Fisheries Assessed

- Menhaden (commercial, very large)
- Shrimp (commercial, very large)
- Continental coastal (recreational and commercial)
 - Releases are important
- Caribbean (primarily commercial, small)
- Atlantic HMS
 - Tunas and swordfish (recreational and commercial)
 - Billfish (recreational)
 - Sharks (recreational and commercial)

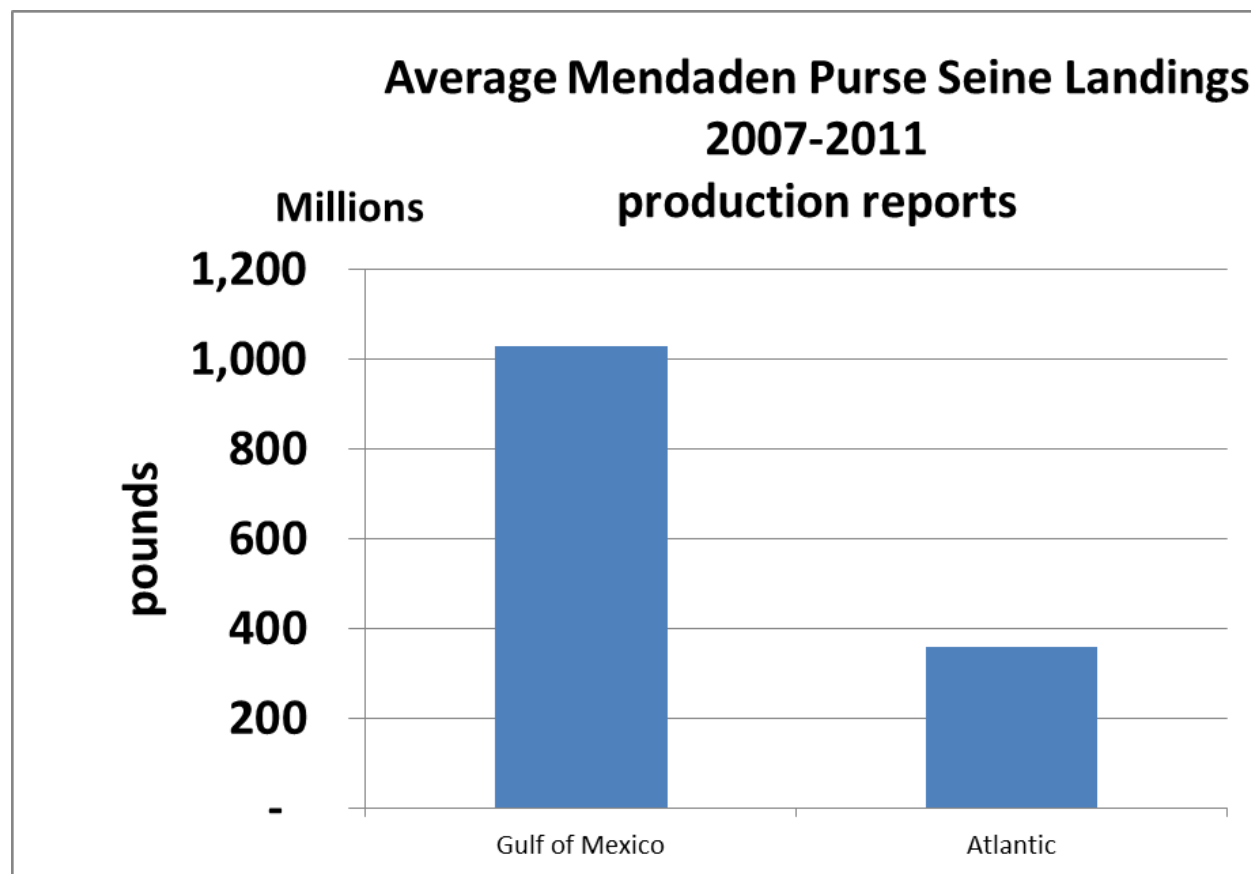
SEFSC fisheries

- Commercial landings (state and federally managed species)
- Recreational and commercial landings (managed species)
- Recreational landings and releases
- Recreational and commercial releases compared

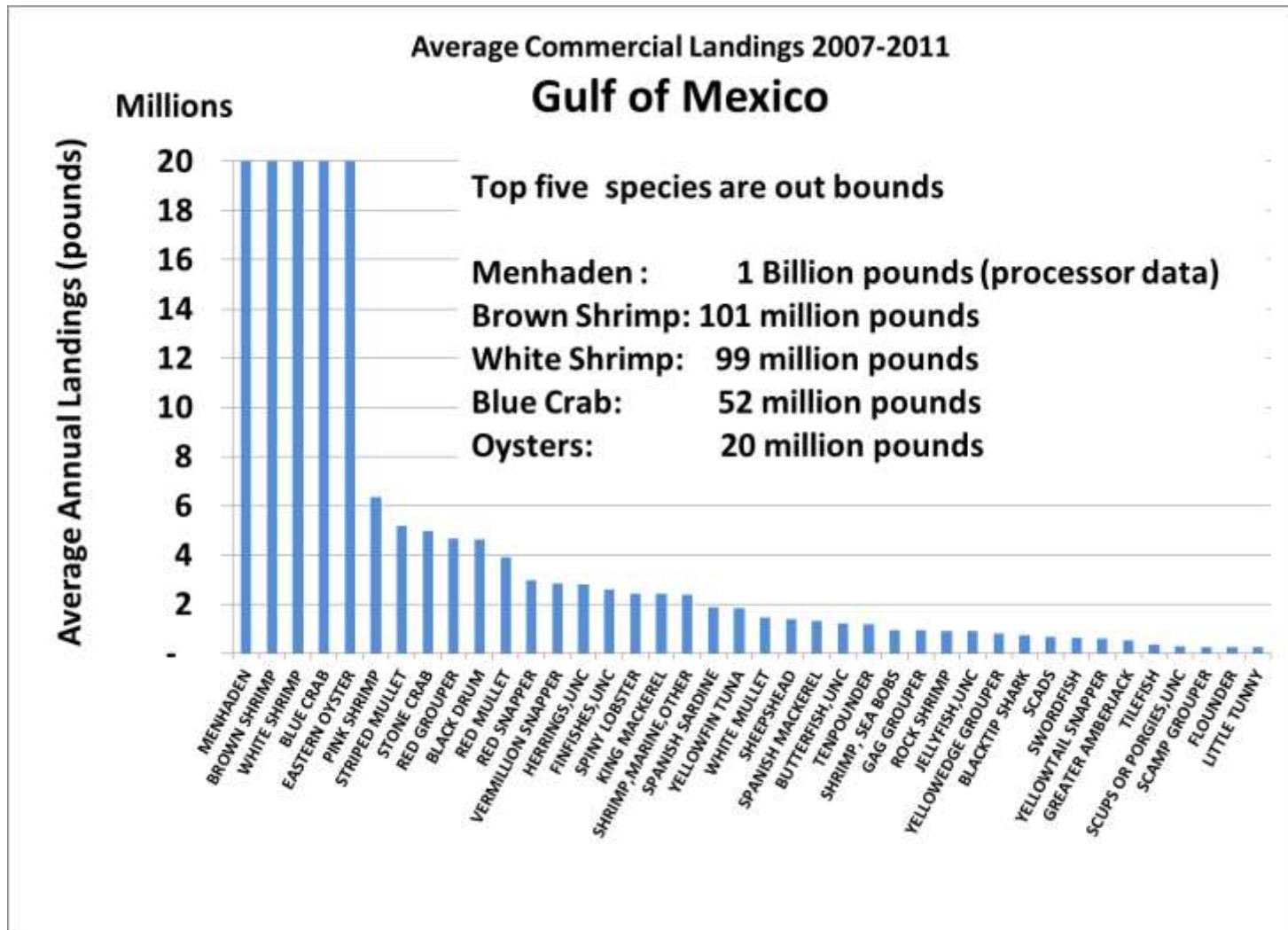
Southeast Fisheries: menhaden

Atlantic managed by
ASMFC

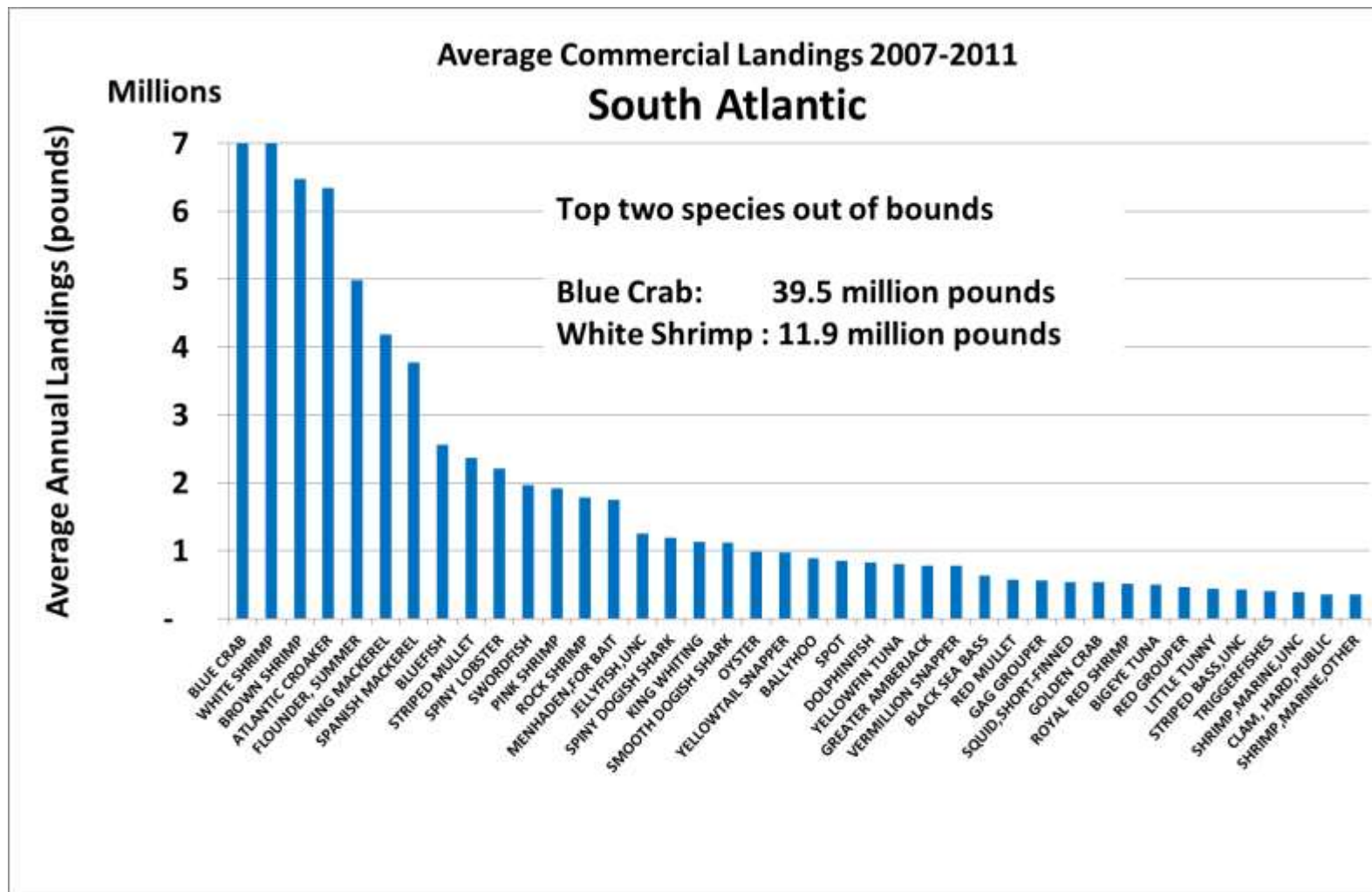
Most data collection
funded by SEFSC and
assessments conducted
by SEFSC



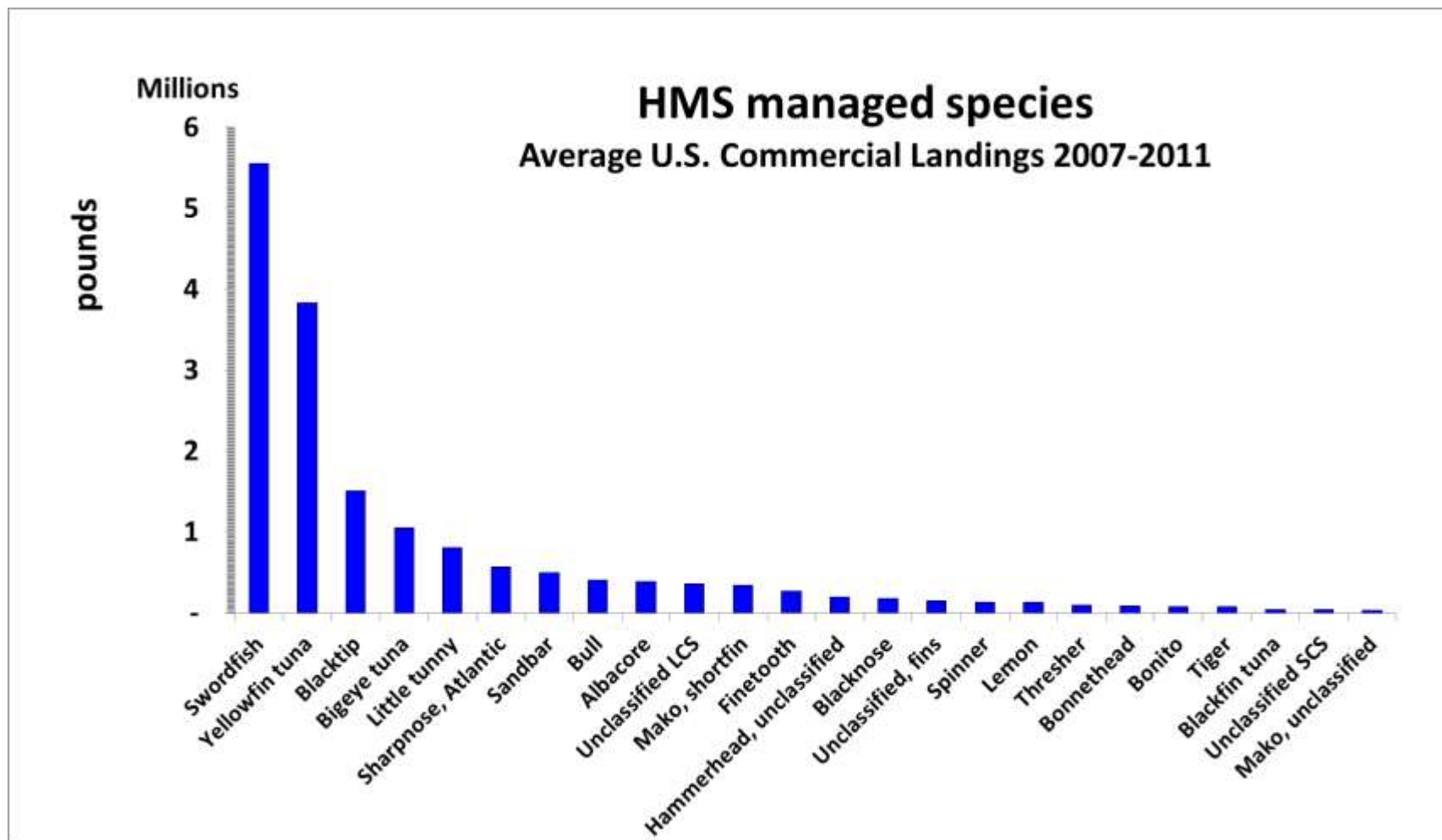
Gulf of Mexico Commercial fisheries



South Atlantic Commercial Fisheries

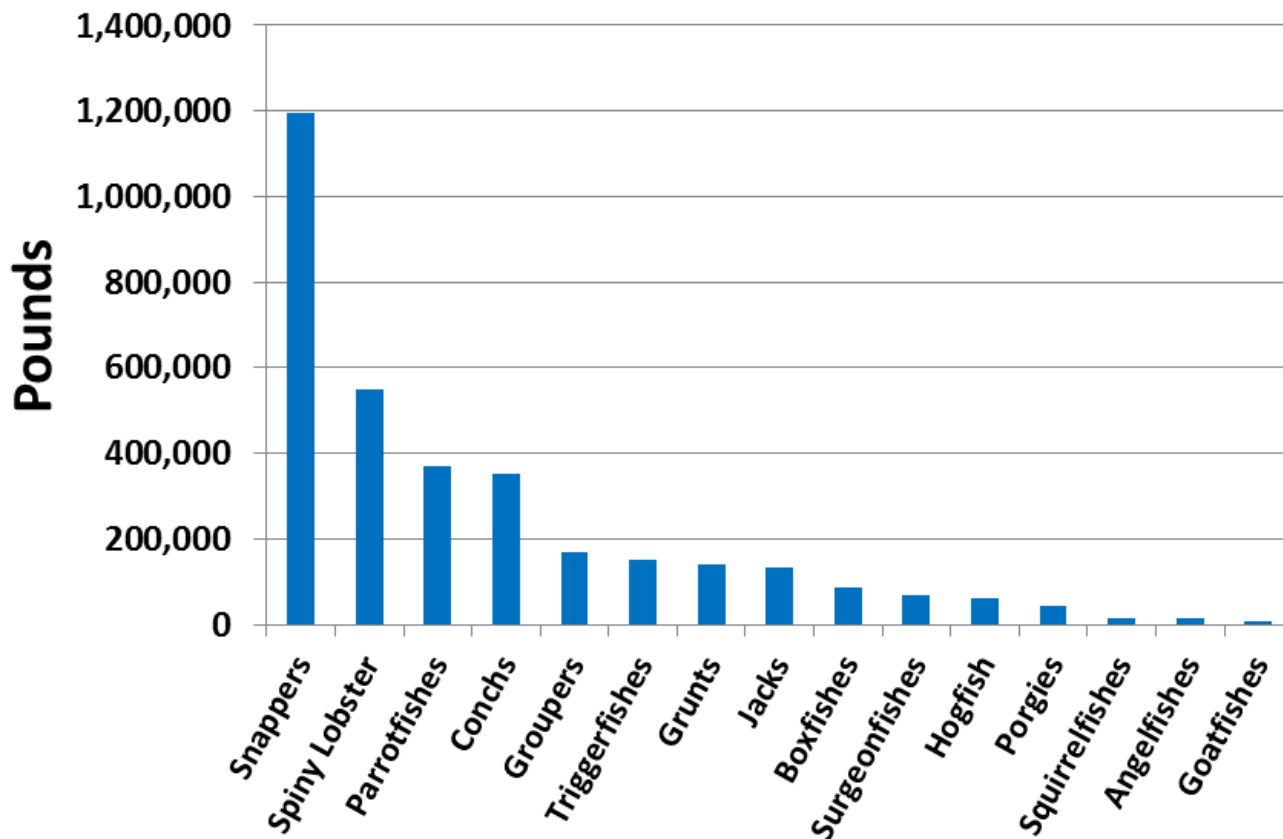


HMS Atlantic Commercial Fisheries



Caribbean Commercial Fisheries

**Average Commercial Landings 2007-2011
U.S. Caribbean**



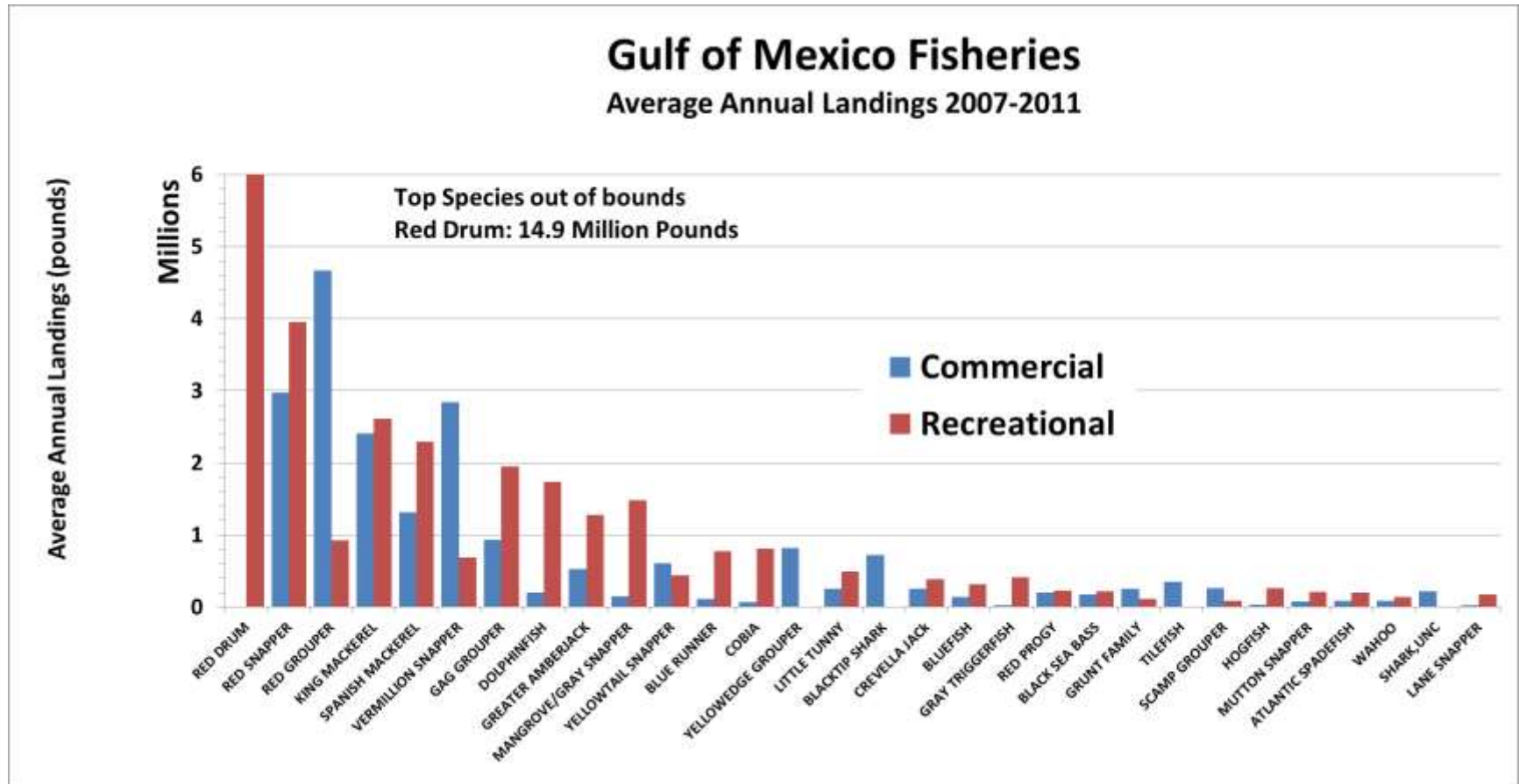
**VI landings by
family until 2011**

SEFSC fisheries

- Commercial landings (state and federally managed species)
- **Recreational and commercial landings (managed species)**
- Recreational landings and releases
- Recreational and commercial releases compared

Southeast Fisheries

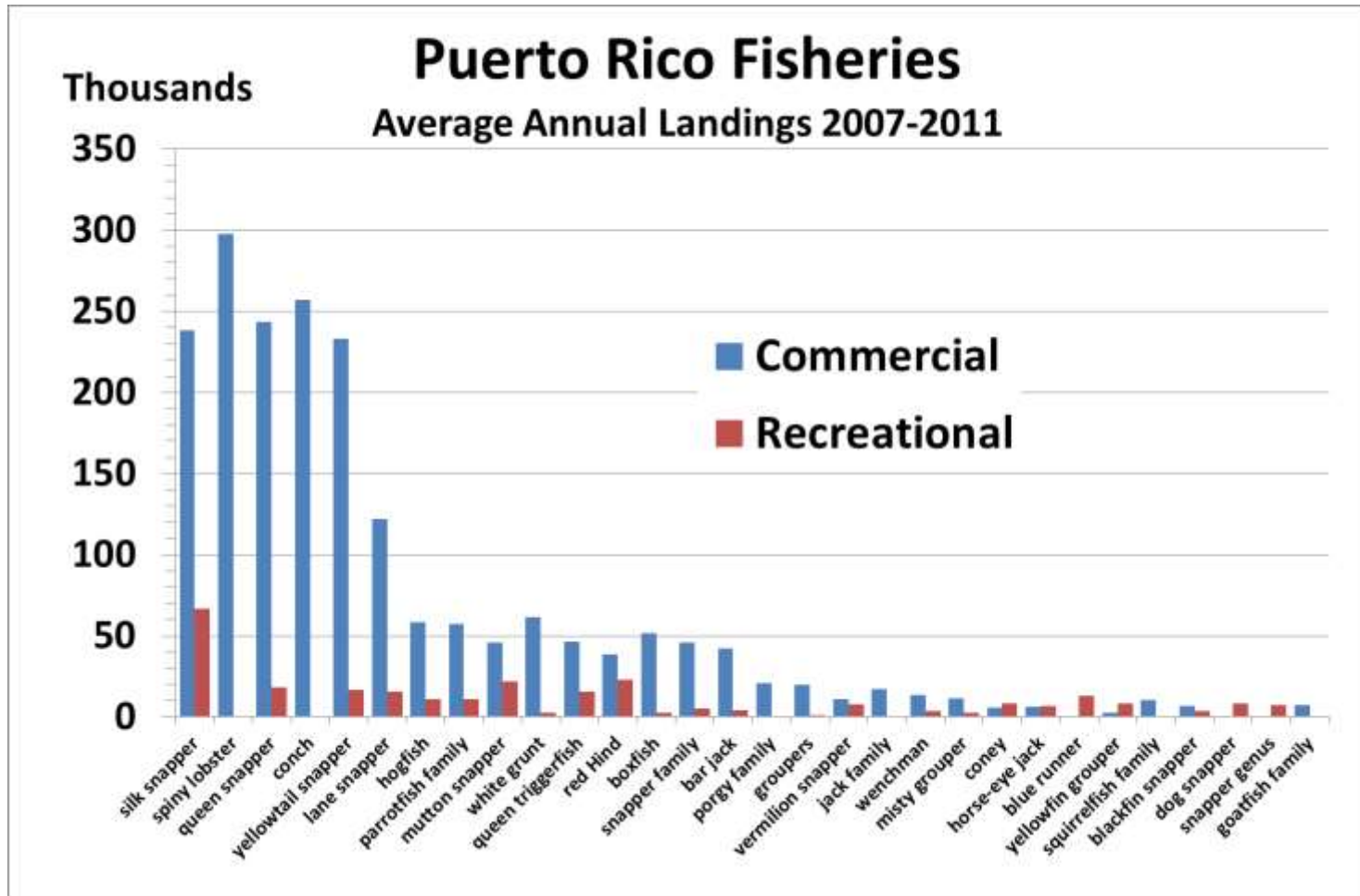
Commercial and Recreational Landings



Landings of some stocks predominately recreational and
other stocks predominately commercial

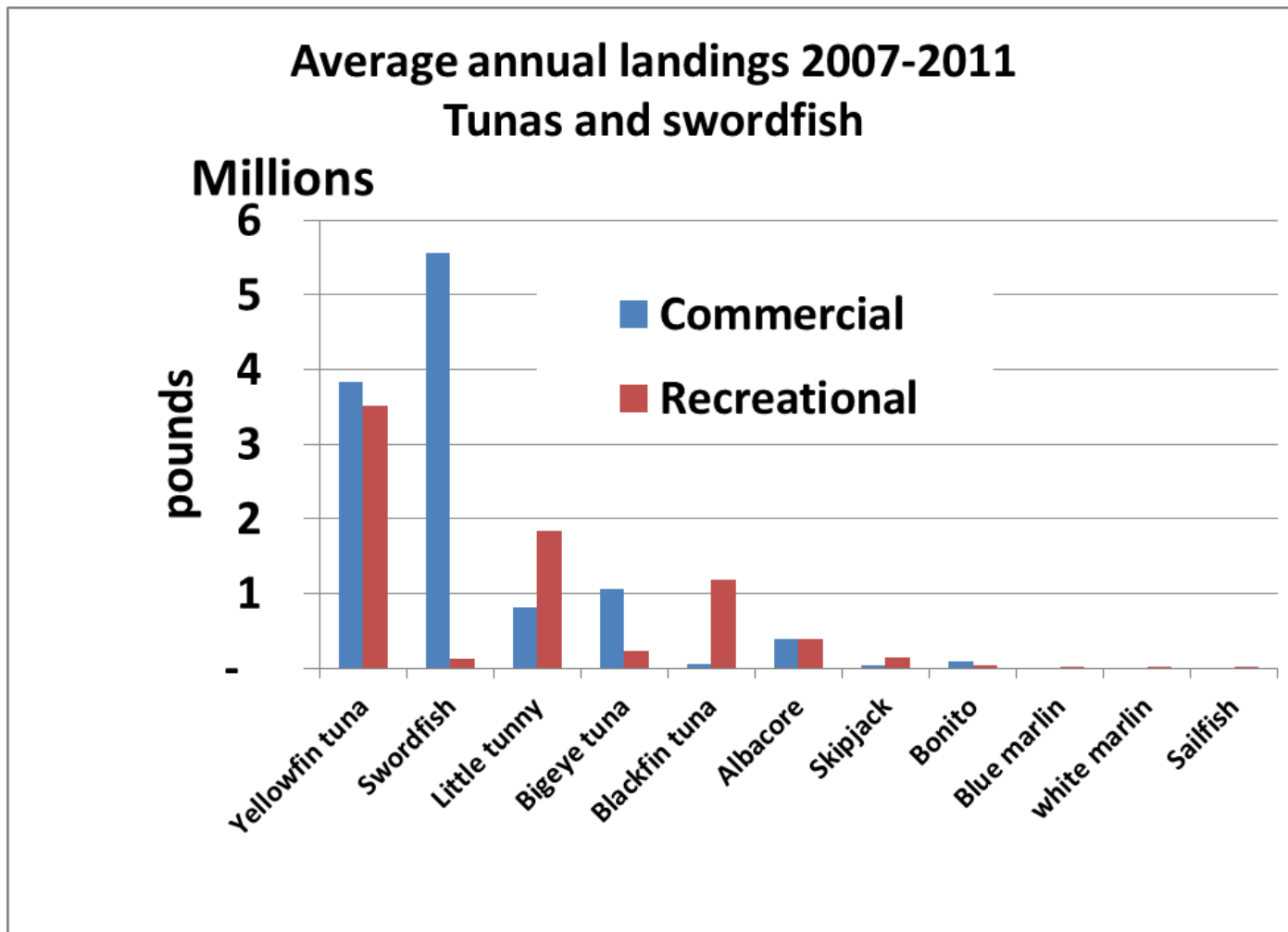
Southeast Fisheries

Commercial and Recreational Landing



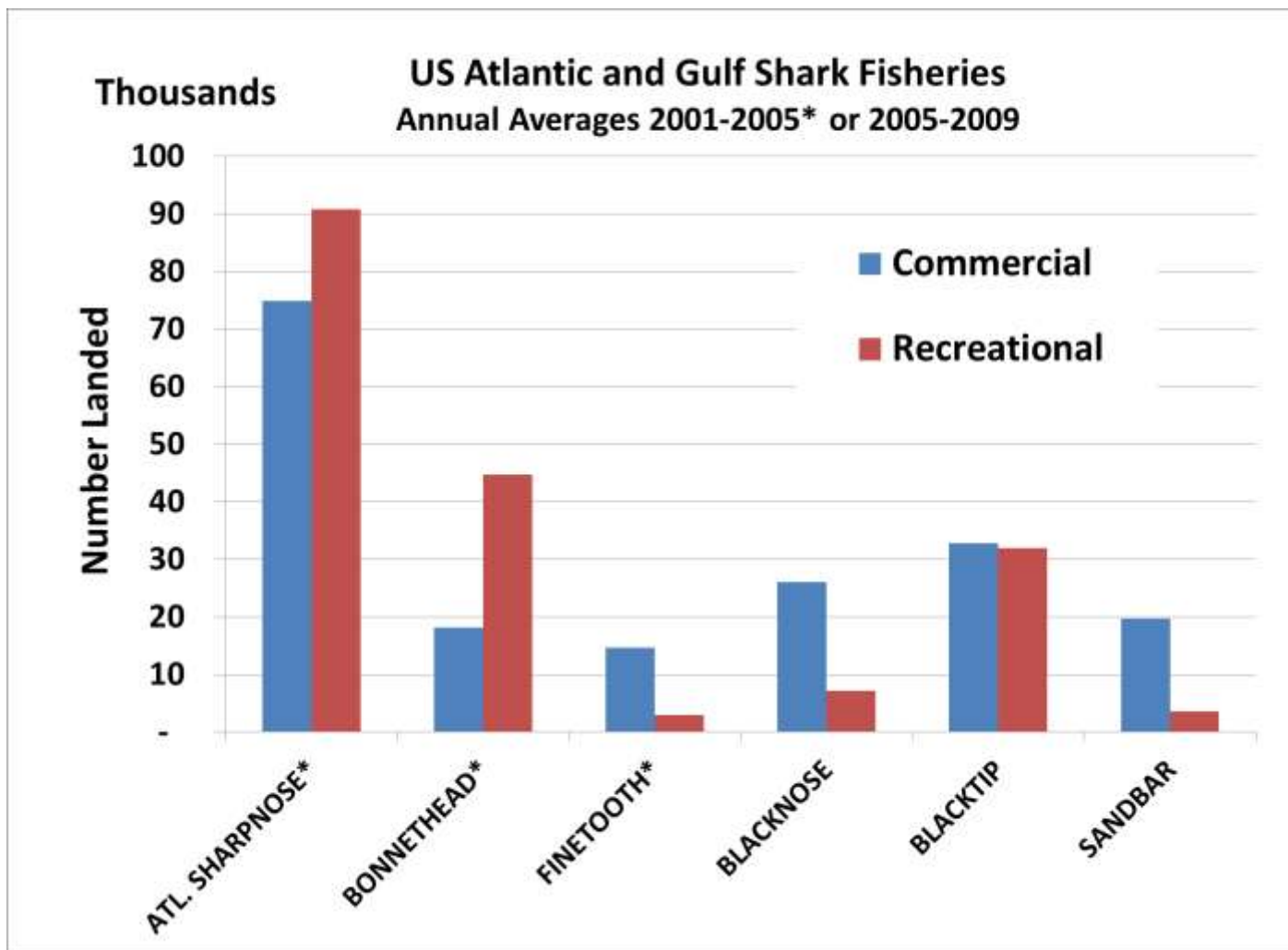
HMS Fisheries – tunas and swordfish

Commercial and Recreational Landings



Southeast Fisheries

Commercial and Recreational Landings

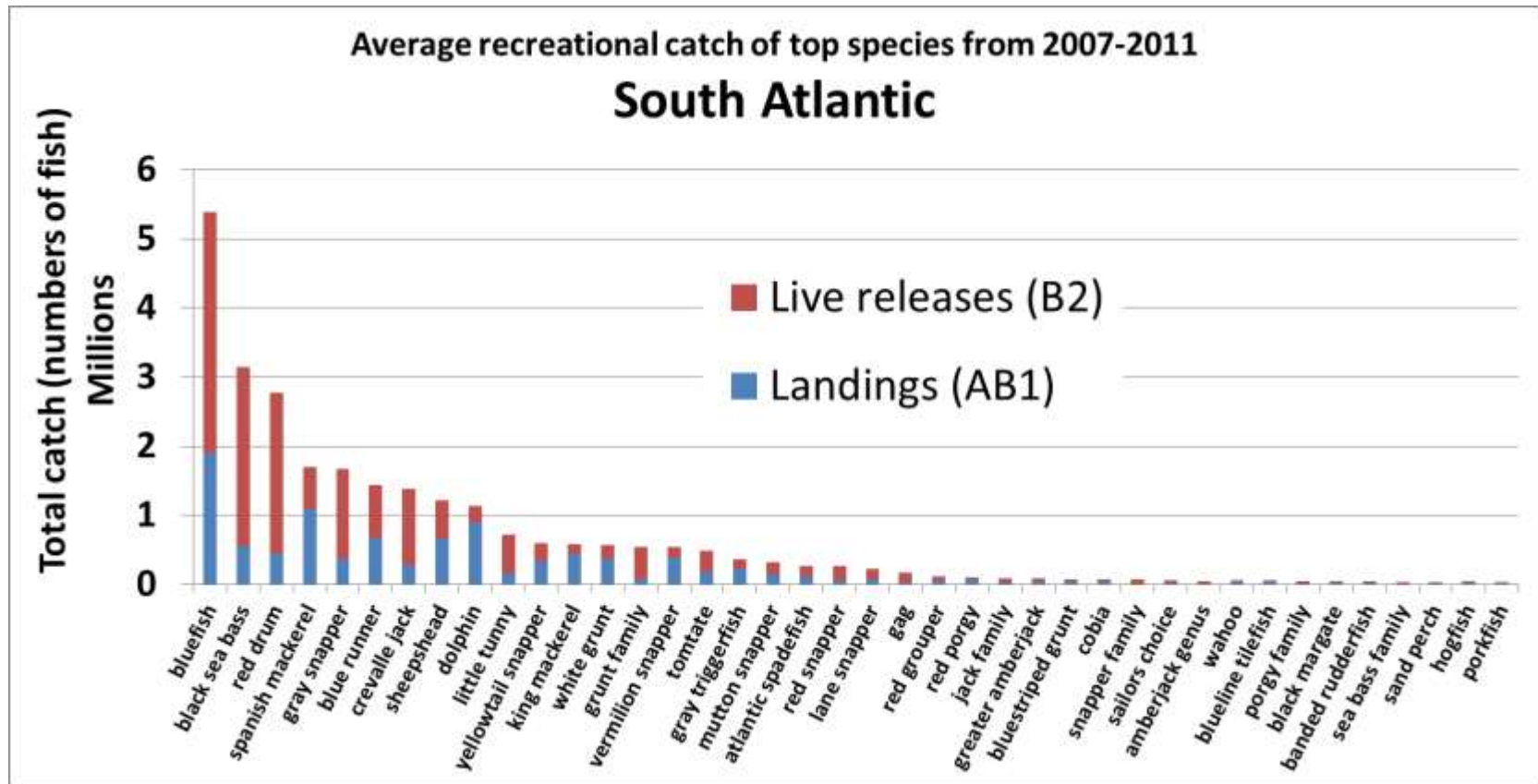


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- Recreational and commercial releases compared

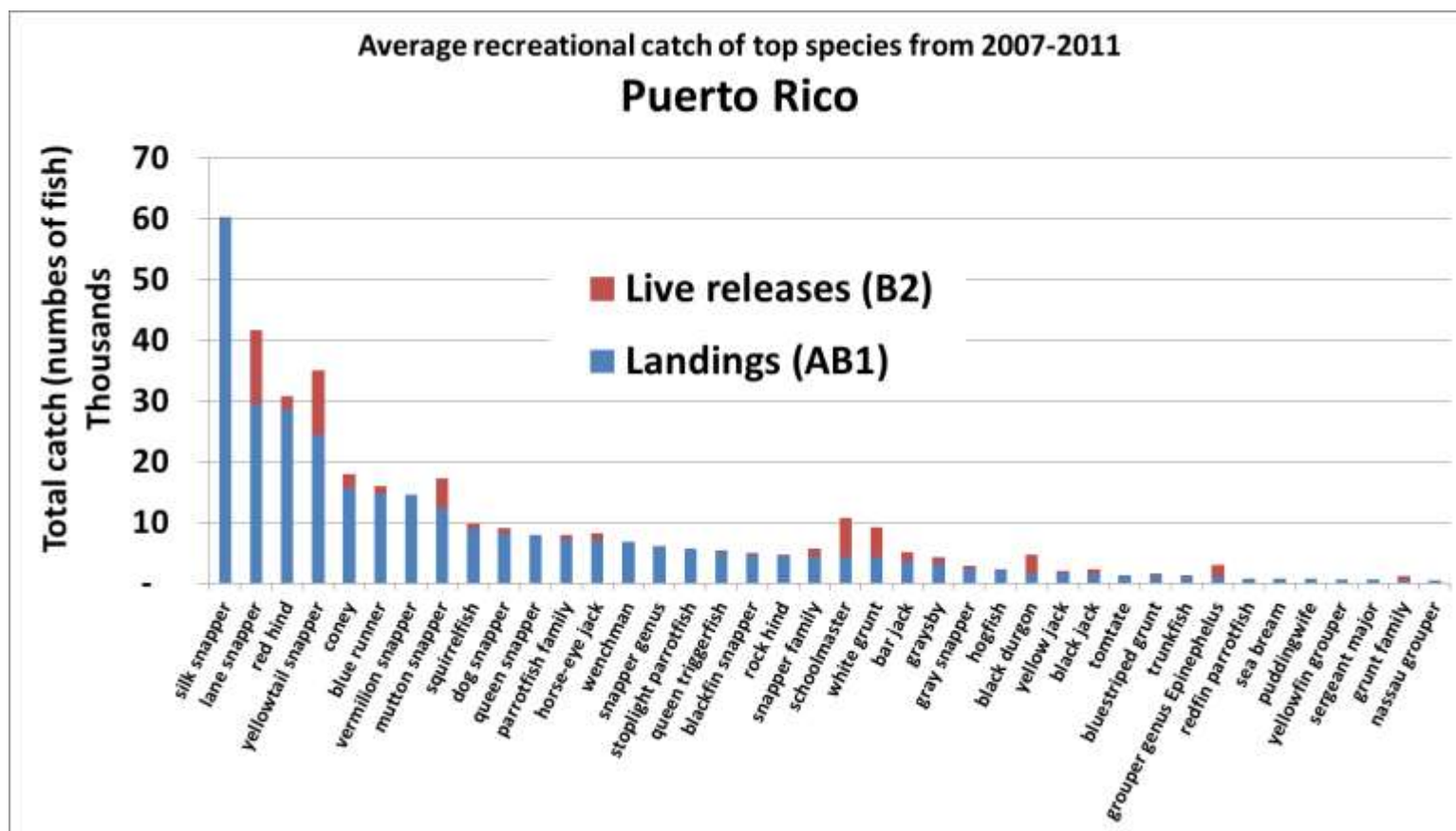
Southeast Fisheries: importance of releases

South Atlantic recreational landings and releases (n fish)



Southeast Fisheries: Importance of releases

Puerto Rican recreational landings and releases (n fish)

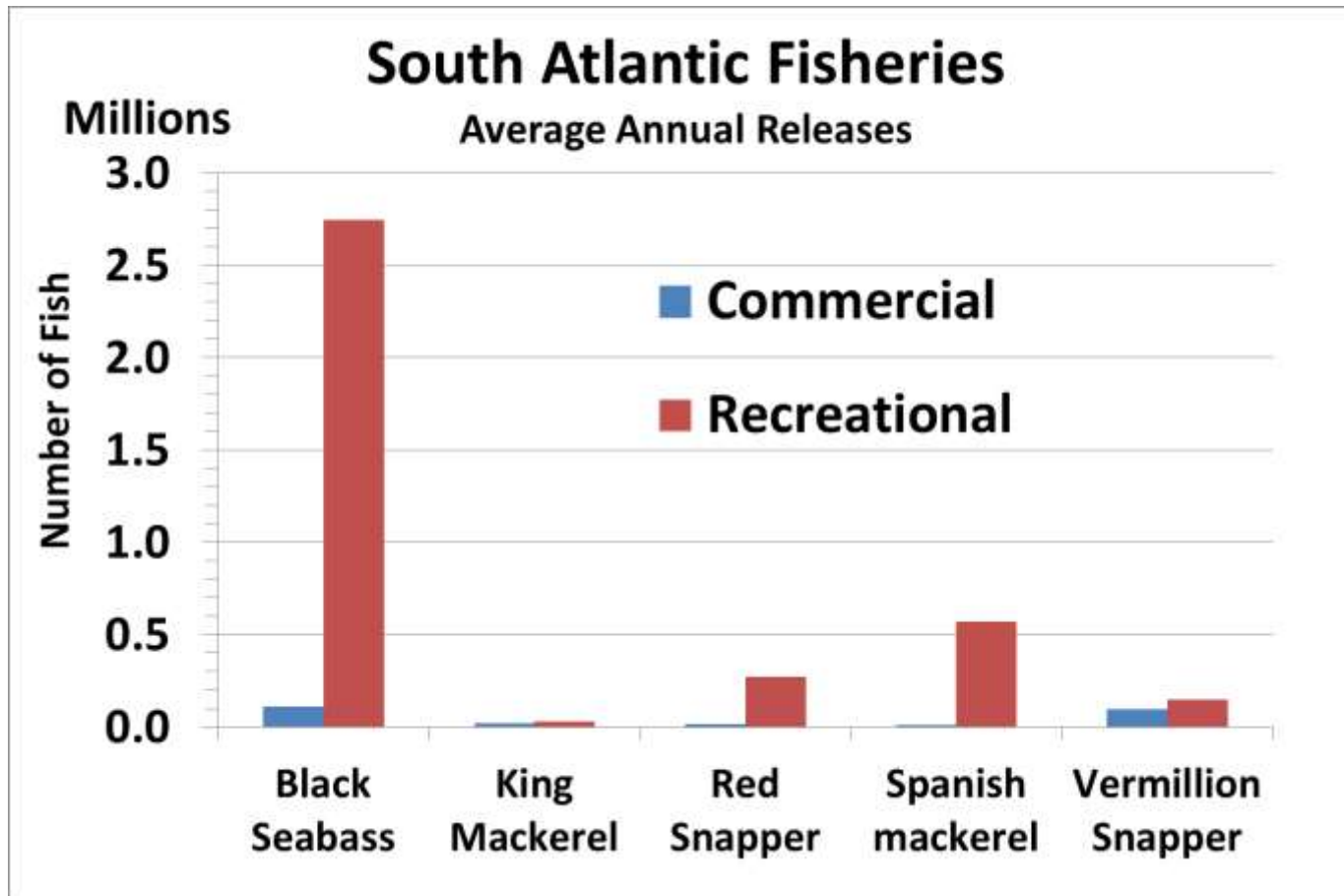


SEFSC fisheries

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Southeast Fisheries: importance of releases

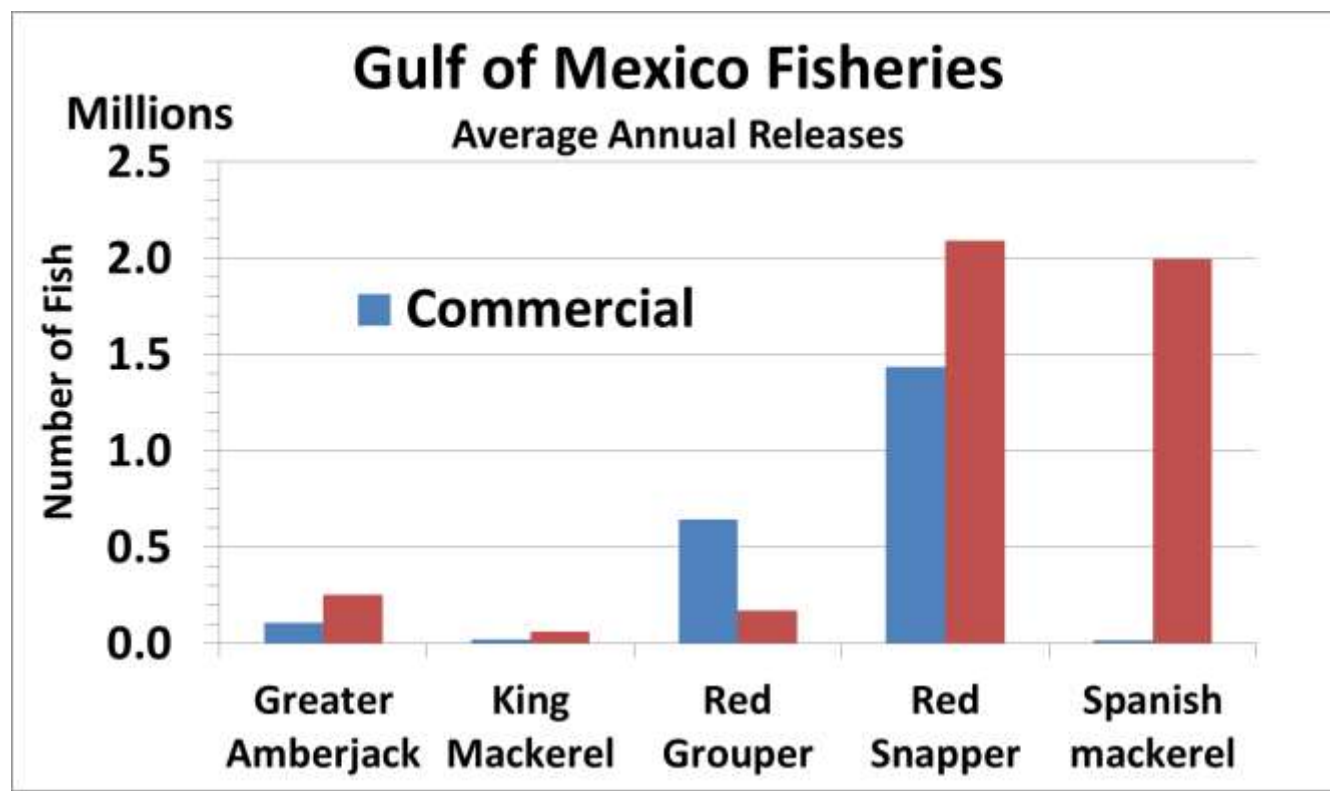
Recreational and commercial releases



based on
self-reported
information

Southeast Fisheries: importance of releases

Recreational and commercial releases

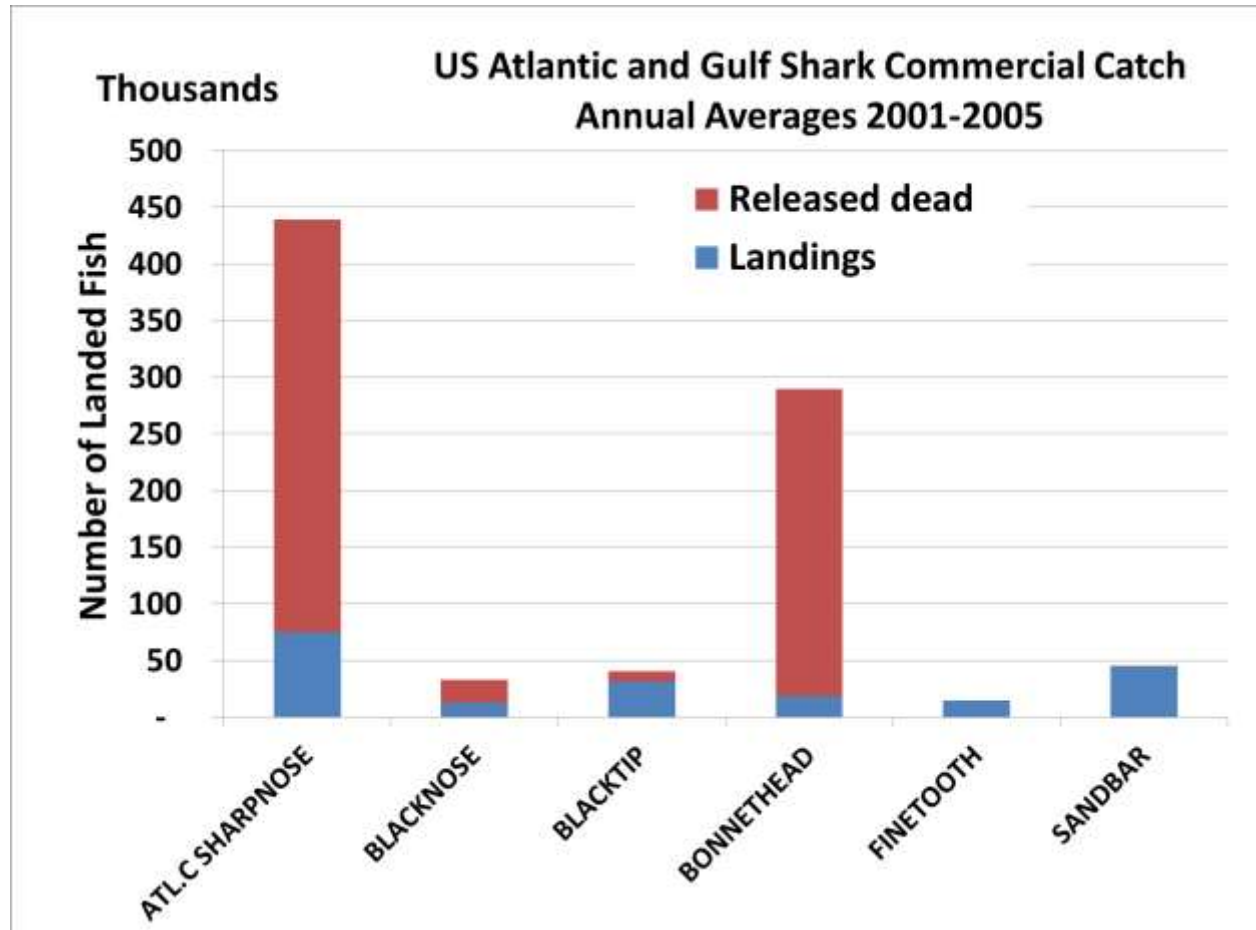


self-reported:
Recreational: all
Commercial: mackerels

observer:
Commercial:
Red snapper
Red grouper
Greater amberjack (preliminary)

Southeast Fisheries: importance of releases

Shark commercial releases



Southeast Fisheries: summary

- Largest fisheries (100s of millions of pounds) are commercial – menhaden and shrimp
- Moderate sized fisheries may have substantial recreational and commercial landings
- Releases are an important part of the total catch especially recreational fishery

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Fisheries Data Types

- Catch
 - Landings – fish brought ashore
 - Releases at sea (and other fishery based mortality)
- Catch-effort – detailed data on vessel activity
 - Catch quantity and distribution (time and space)
 - Effort quantity and distribution
 - Catch rate analyses
- Biological information
 - Size, age and other biological information (reproductive biology, stock structure, trophic relationships)
 - Landed fish
 - Releases at sea

Fisheries Data Types: Requirements

Landings

- Timely
 - preliminary: within year for monitoring and between assessment updates / projections
 - final: soon after end of year so that assessments can use the latest possible data
- Accurate
 - unbiased
 - Complete (census) / low CIs (statistical surveys)

Fisheries Data Types: Requirements

Released catch

- Timely
 - preliminary: within year for monitoring and between assessment updates / projections
 - final: soon after end of year so that assessments can use the latest possible data
- Accurate
 - Representative sampling
 - Sufficient samples to accurately characterize the fishery

Fisheries Data Types: Requirements

Catch-effort

- Complete
 - If effort needed for estimation of releases
- Timely
 - For estimation of releases and calculation of indices of abundance
- Accurate

Fisheries Data Types: Requirements

Biological sampling

- Timely
- Representative
 - Selection of trips
 - Selection of fish within trips
- Sufficient

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Catch

- Recreational catches
 - issues
 - programs
 - strengths and weaknesses
- Commercial landings
 - continental
 - Caribbean
- Commercial releases



Recreational Catches (landings and releases) issues

- Assessment presentations
 - Nearly all self-reported
 - Low or usually no observer coverage or other such programs

Recreational Catches (landings and releases) programs

- Statistical surveys
 - MRIP
 - Geographic range: NC-LA, PR
 - Partners: GulfFIN, states, PR
 - 2 month waves, all species recorded
 - Effort: phone calls from lists of registered anglers
 - At sea observers, Atlantic coast
 - TPWD
 - 2 waves / year (Nov-May, May-Nov)
 - 10 primary species and 'other'
 - SEFSC calculates additional species from 'other'
 - Effort: ???
 - LPS
 - Geographic range: ME-VA
 - Waves: monthly (weekly or bi-weekly recall of effort)
 - Effort: phone calls from lists of permitted anglers
- Observer programs
 - ACCSP: headboats
 - Geographic range: NC-seFL (Miami)
 - Partners: NC, SC, GA, FL
 - FL
 - short term studies (3-4 years)
 - Different areas, generally not comprehensive



Recreational Catches – programs

- Logbook programs
 - SRHS (Southeast Region Headboat Survey)
 - Geographical range: NC-TX
 - Self-reported catch
 - Validated effort (trips)
 - Recreational Billfish Survey (tournaments)
 - U.S. permitted tournaments
 - Self-reported catch and effort
 - Census attempted
- Call-in
 - Atlantic HMS Recreational Reporting Line (RRL)

Recreational Catches

- Strengths
 - TPWD, MRIP, LPS
 - Statistical survey
 - SRHS
 - Effort well monitored
- Concerns
 - Little or no observer coverage. Need size and age
 - Releases are primarily self-reported
 - TPWD
 - Low temporal resolution
 - Estimates for only 10 species, rest derived by proportioning
 - Releases not recorded and some selected anglers excluded (landings not seen by observer)
 - SRHS (headboat)
 - Self-reported landings
 - LPS
 - Limited geographic range
 - RBS
 - Potentially incomplete
 - RRL (HMS phone)
 - Low participation rates
 - Self-reported



Commercial Landings – issues

- Continental
 - Timeliness
 - Within-year (raw data) - impacts ability to update catch for updates and projections
 - Final data – impacts when assessments can occur
- Caribbean
 - Self-reported
 - VI –concern about accuracy
 - PR – impact of substantial non-reporting
 - timeliness



Commercial Landings – sources and partners

Sources:

- Commercial
 - dealers (continental)
 - vessels (Caribbean – self-reported)
 - Processors (menhaden)

Partners and Programs

- Commercial
 - states and territories collect
 - ACCSP and GSMFC coordinate and integrate
 - SEFSC, NERO, NEFSC, HMS



Commercial Landings - continental general

- Timeliness of raw data
 - State permitted and federally permitted dealers
 - State dealers monthly
 - Federal – semi-monthly
 - mandatory reporting federally permitted dealers March 2011 (only some FMPs required permit)
 - Dealers handling all federally regulated species required to have a permit sometime in 2014
 - Timeliness of raw data should improve after implementation of permit for all
 - Weekly reporting
 - Ability to monitor compliance
- Timeliness of final data
 - Atlantic states
 - ACCSP
 - Deadlines usually met (mid April following year)



Commercial Landings - continental general

- Timeliness of final data
 - Gulf states
 - Many levels of capability and adaptability
 - some states landings not available until August of following year
 - GulfFIN landings system
 - State updates replace data
 - Updates not identified
 - Some states still working to develop trip ticket systems which meet standards
- SEFSC
 - Collects monthly landings from states without compliant trip ticket systems
 - Monthly collection
- HMS (2013)
 - Most reports through ACCSP and GulfFIN and all sources integrated by ACCSP
 - Weekly reporting



Commercial Landings - continental general

- Strengths
 - Census
 - States involved/interested because of large state fisheries
 - ACCSP standards and timeliness
 - ACCSP and GulfFIN integration
- Challenges
 - Most states have limited capacity
 - Several states (especially Gulf) - processing delays
 - Quality issues (tomorrow)



Commercial Landings - continental general

- Progress
 - SEFSC began requiring all permitted dealers (some fisheries) to report electronically in 2011
 - SERO will require all dealers of federally managed species to obtain a permit in 2014
 - ACCSP, GulfFIN, HMS, NEFSC, SEFSC streamlining, standardizing and aggregating
 - Many improvements to vendor's e-reporting system (progress still needed)



Commercial Landings – U.S. Caribbean

- Virgin Islands and Puerto Rico
- Strengths
 - Virgin Islands – all fishers must have reported catch and effort for the previous year to renew their fishing license in July
 - Opportunity to train all fishers
 - Puerto Rico –
 - Species specific reporting of catch and effort by fishers
 - Survey to estimate under-reporting (2003+)



Commercial Landings – U.S. Caribbean

- Progress
 - Caribbean Commercial Landings Improvement Plan (2010) provides structure for moving forward
 - SEFSC deployed a web-based landings reporting system in August 2011.
 - Species specific reporting
 - Compliance tracking
 - Improved quality control



Commercial Landings – U.S. Caribbean

- Concerns
 - Data entry delays (still entering 2012 reports)
 - Not all species on new (July 2011) VI data forms
 - Virgin Islands
 - Late reporting (some in July for year)
 - Reported by family (not species) before July 2011
 - No validation of
 - Participation (unlicensed fishers)
 - Trips reported
 - Catch reported
 - Puerto Rico –
 - Census design but incomplete reporting
 - Recent changes in licensing (frame)
 - Limited validation of under-reporting
 - Validation survey not a statistical design, low n

2012 Jun-Oct



2013



Commercial Landings – U.S. Caribbean

- Solutions
 - Statistical surveys
 - Determine VI participation and effort reports
 - Validate landings reports
 - Puerto Rico
 - Estimate total effort and total catch
 - Timeliness
 - Speedier data transmission rates / systems

2012 Jun-Oct



2013



Commercial Released Catch

Sources:

Self-reported - most fisheries

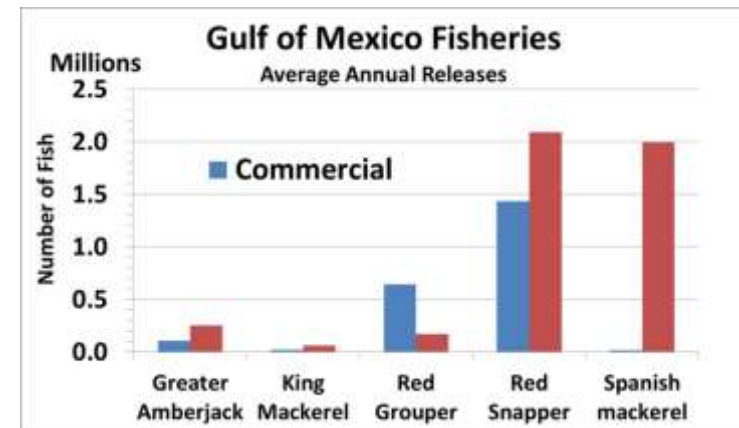
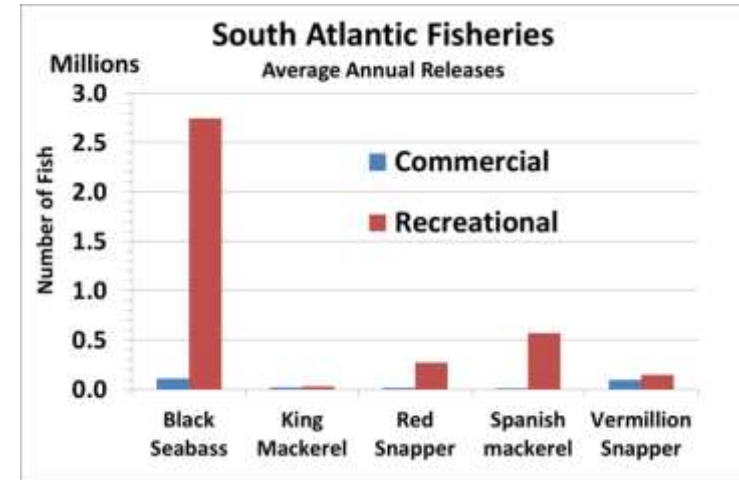
SEFSC

trip reports (effort)

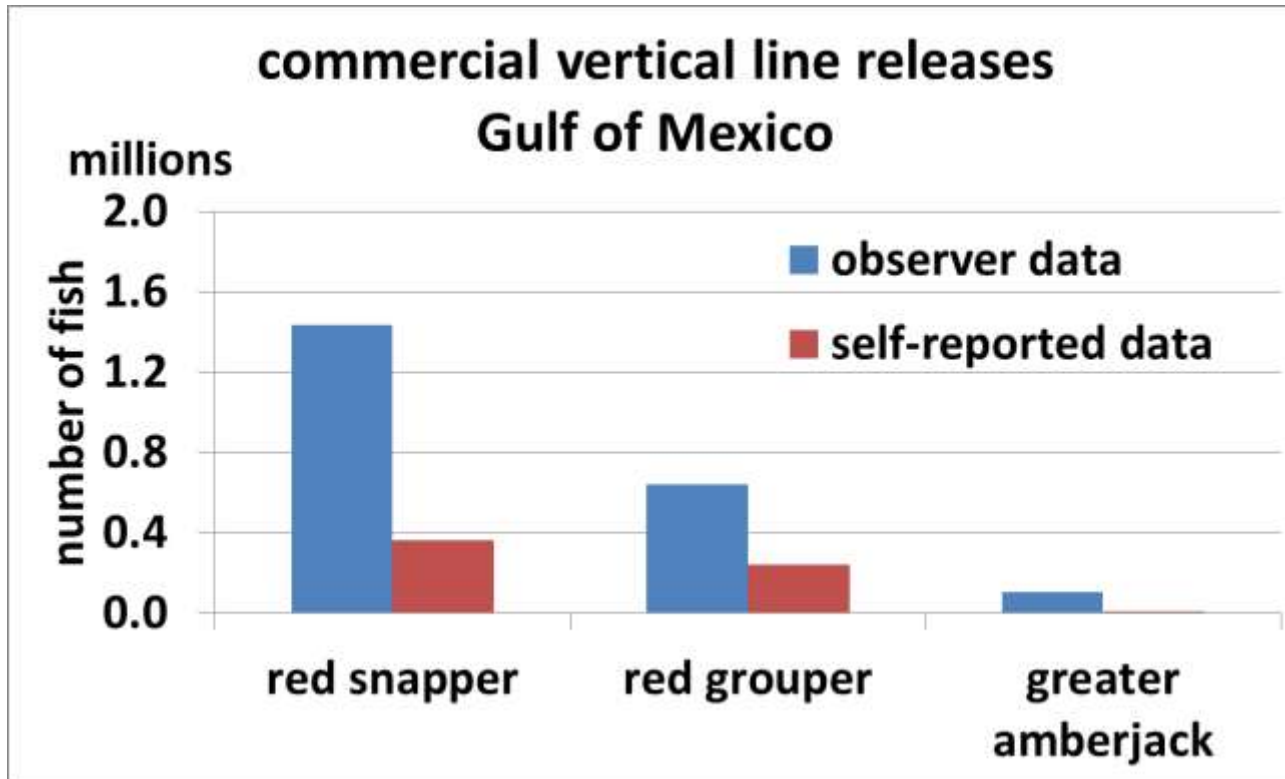
discard reports (20% of vessels)

Scientific observers (next talk)

- **SEFSC:**
 - GOM: shrimp, reef fish, bottom longline, gillnet
 - Pelagic longline
- **GSAFF:** S Atlantic vertical line (very small program)
- **MRIP** (ACCSP): for-hire
- **FL:** for-hire



Commercial Released Catch self-reported << observed



Recent acquisition
Of observer data
Provides a very
Picture of
Number released

Compared to self-reported
Estimates

Commercial Released Catch - issues

- Assessment presentations
 - Almost all self-reported
 - Substantial under-reporting
- HMS some fisheries not covered by logs or surveys

Commercial Released Catch - issues

- Fisheries Logbook Program
 - primary survey (effort, catch) census for most permitted fisheries (continental)
 - Bycatch survey (20% of vessels weighted by effort)
 - Bycatch survey Sampling Design
 - Stratified random
 - Strata
 - Region (Gulf of Mexico, South Atlantic)
 - Gear (handline, electric reel, bottom longline, gillnet, troll, spear, trap)
 - Estimation
 - Total effort from the primary survey
 - Catch rates from the release survey
 - Delta-lognormal estimator in most cases
 - Concerns
 - Self-reporting
 - No scientific sampling for many fisheries, especially the South Atlantic
 - Solution
 - Observer programs

Effort, Catch and Effort - issues

- Self-reported
- Coarse spatial and temporal resolution of continental catch-effort data especially for the commercial fisheries



Effort, Catch and Effort

Sources:

commercial

- self-reported vessel logs – most fisheries
- GSS (Gulf shrimp dockside interviews)
- Automated
 - Shrimp effort system (location and gear activity) LGL Ecosystems Research
 - VMS (location only, GOM reef fish, pelagic longline)

recreational

MRIP and LPS – dockside interviews, phone
SRHS – self-reported vessel logs, trip validation
TPWD – dockside interviews,
how do they get total effort?
RBS – self-reported tournament logs



Partners and Programs

Commercial: SEFSC, LMR, NMFS-OLE, VI, PR

Recreational: SEFSC, LPS, GulfFIN, ACCSP, TPWD, states, PR

Effort, Catch and Effort -commercial

- Self-reported
 - Strengths
 - GSS – high sampling fraction
 - SEFSC FLS - Census, annual compliance
 - VI – Census, annual compliance
 - Concerns
 - Self-reported
 - GSS – low spatial and temporal resolution
 - SEFSC FLS – low spatial-temporal resolution, timeliness
 - VI - unlicensed fishers, timeliness, not all species
 - PR – non-reporting, timeliness



Effort, Catch and Effort -commercial

- Automated
 - Strengths
 - Automated, independent of fishers
 - Shrimp effort logger – 1/3 of fleet covered
 - VMS – mandatory for some fisheries (GOM reef, HMS PLL)
 - Concerns
 - Shrimp logger – vessel selection not random
 - VMS – systems failed / turned off



Effort, Catch and Effort - recreational

- Statistical surveys
 - Strengths – randomized designs
 - Concerns
 - MRIP, LPS – sample size phone, dockside
 - TPWD – number of waves, design?



Effort, Catch and Effort - recreational

- Self-reported
 - Strengths
 - SRHS – validated number of trips, mandatory reporting, compliance monitoring
 - RBS – compliance monitoring
 - Concerns
 - SRHA – self-reported numbers of anglers and catch
 - RBS – non-compliance, coarse statistics (tournament catch and effort)



Fish Sampling: size, age, reproduction issues

- Landed fish
 - Absence of age samples (Caribbean)
 - Low or no reproductive sampling
 - Low sample sizes for several fisheries
 - Representativeness of sampling
- Released fish
 - Absence of samples for some fisheries
 - Absence of age samples for most fisheries
 - Low levels of age samples for some fisheries

Fish Sampling: size, age and other tissues

Programs and partners

Landed fish (dockside sampling)

commercial

TIP (SEFSC), menhaden, DLS (SEFSC)

GulfFIN, ACCSP, states, territories,

recreational

MRIP, GulfFIN, SRHS, states, Puerto Rico



Releases (observer programs)

commercial

SEFSC – 5 programs (sizes), 1 program (ages)

recreational

sizes: SRHS, GulfFIN, FL, AL, MRIP, ACCSP



Landed Fish Sampling: commercial fisheries

- Continental
 - Strengths
 - Cooperative effort. In TIP 35-40% of interviews and lengths from federal – states highly involved
 - Concerns
 - Indications of differences in sampling
 - Intensities – samplers
 - procedures (targeting) – partners
 - Progress
 - Broad review of standards and procedures underway
 - Trip selection
 - Fish selection
 - Initiated overview and feed back to federal samplers
 - Planned VMS based trip selection

Landed Fish Sampling: commercial fisheries

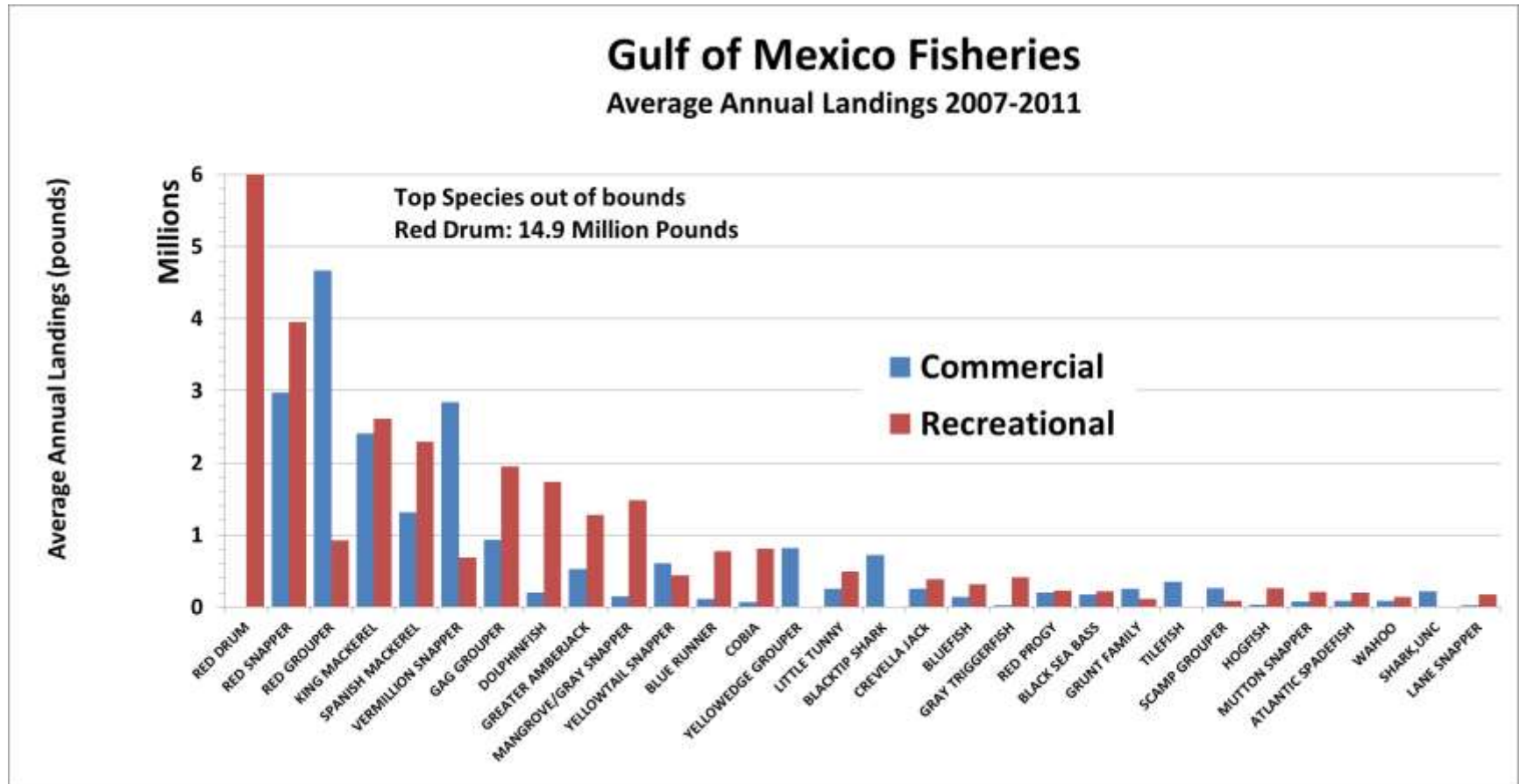
- Caribbean
 - strengths
 - VI increase in sampling from very low levels in 1990s though more is needed
 - PR relative consistency in sampling over time.
 - Concerns
 - VI sampling away from off-loading site
 - Indications non-representative sampling
 - No age sampling

Landed Fish Sampling: recreational fisheries

- Strengths
 - statistically designed sampling (MRIP, SRHS very recently)
- Concerns
 - MRIP low sample sizes
 - GulfFIN sample selection in some states
 - Low samples sizes in S Atlantic
 - No sampling in the VI (unknown fishery size)

Fish Sampling: commercial vs recreational

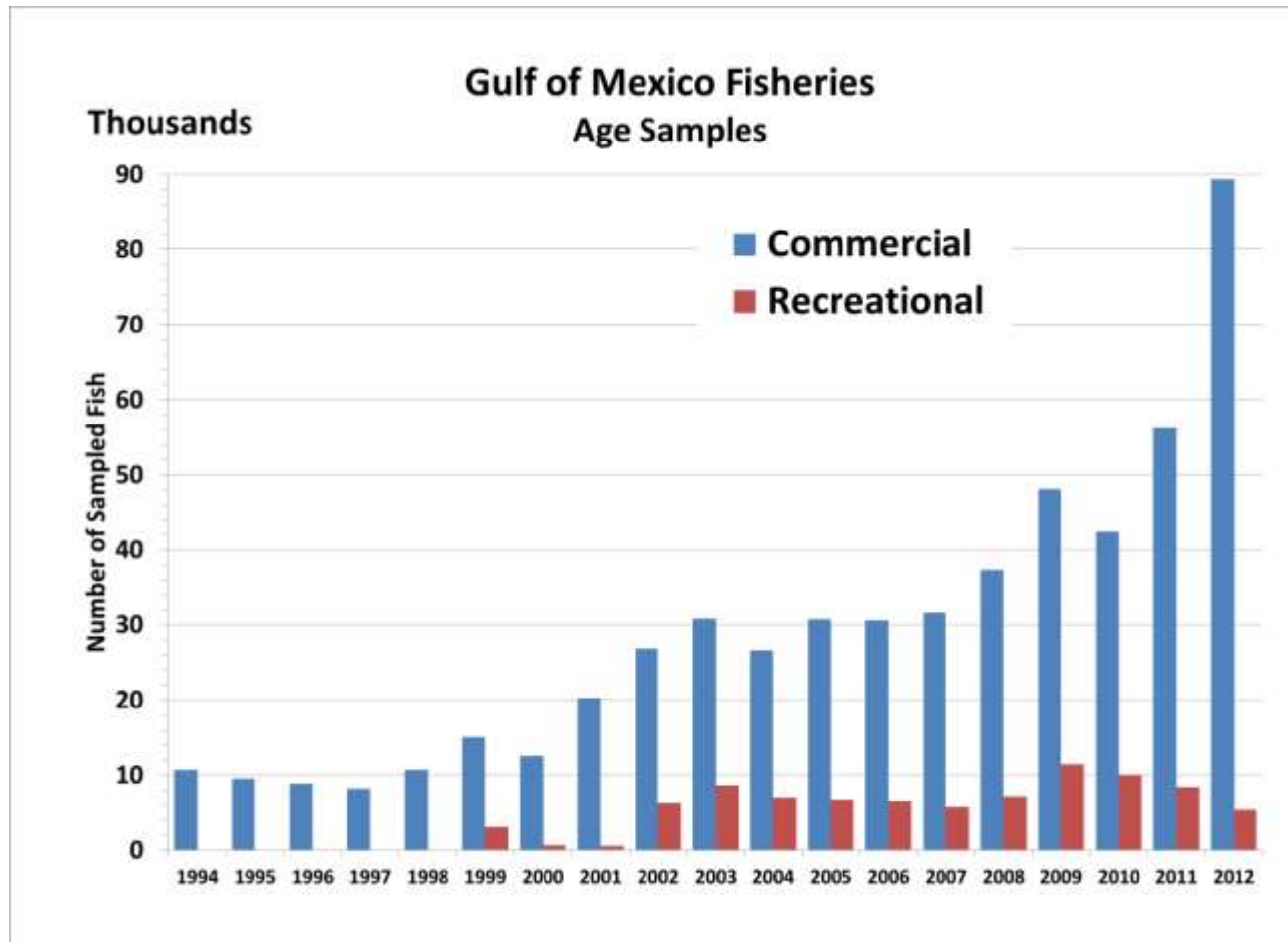
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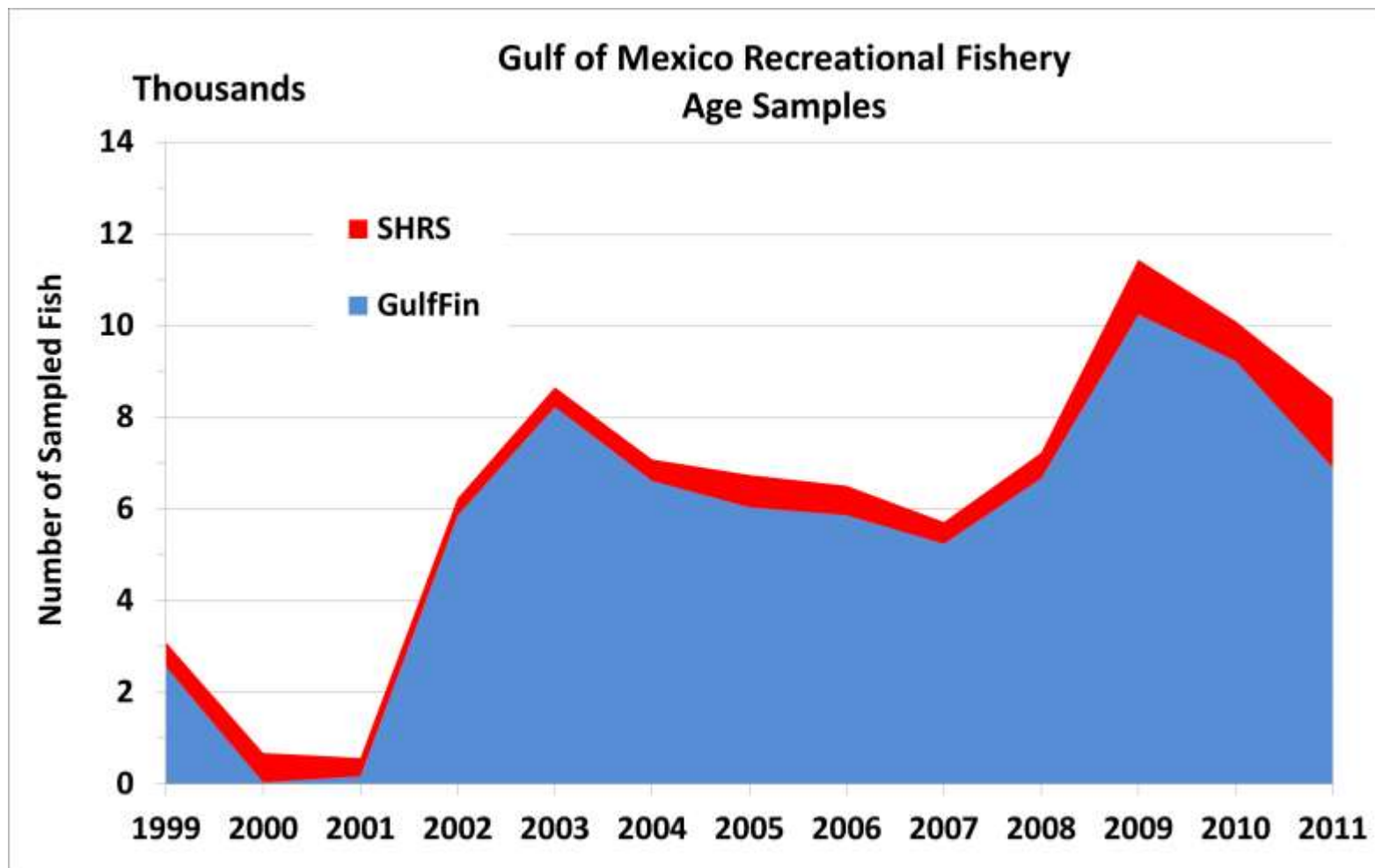
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Size and Age/Biological Samples



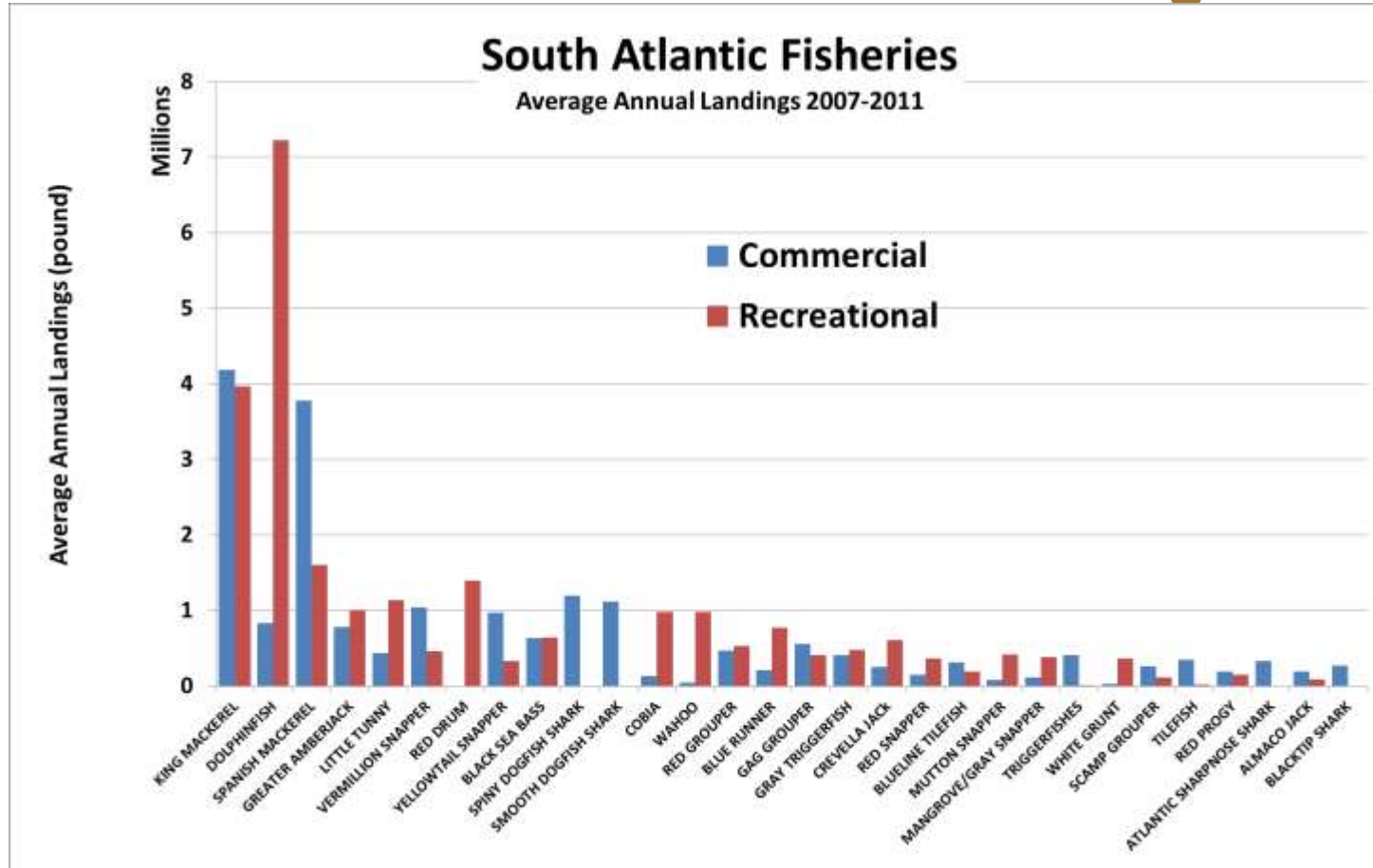
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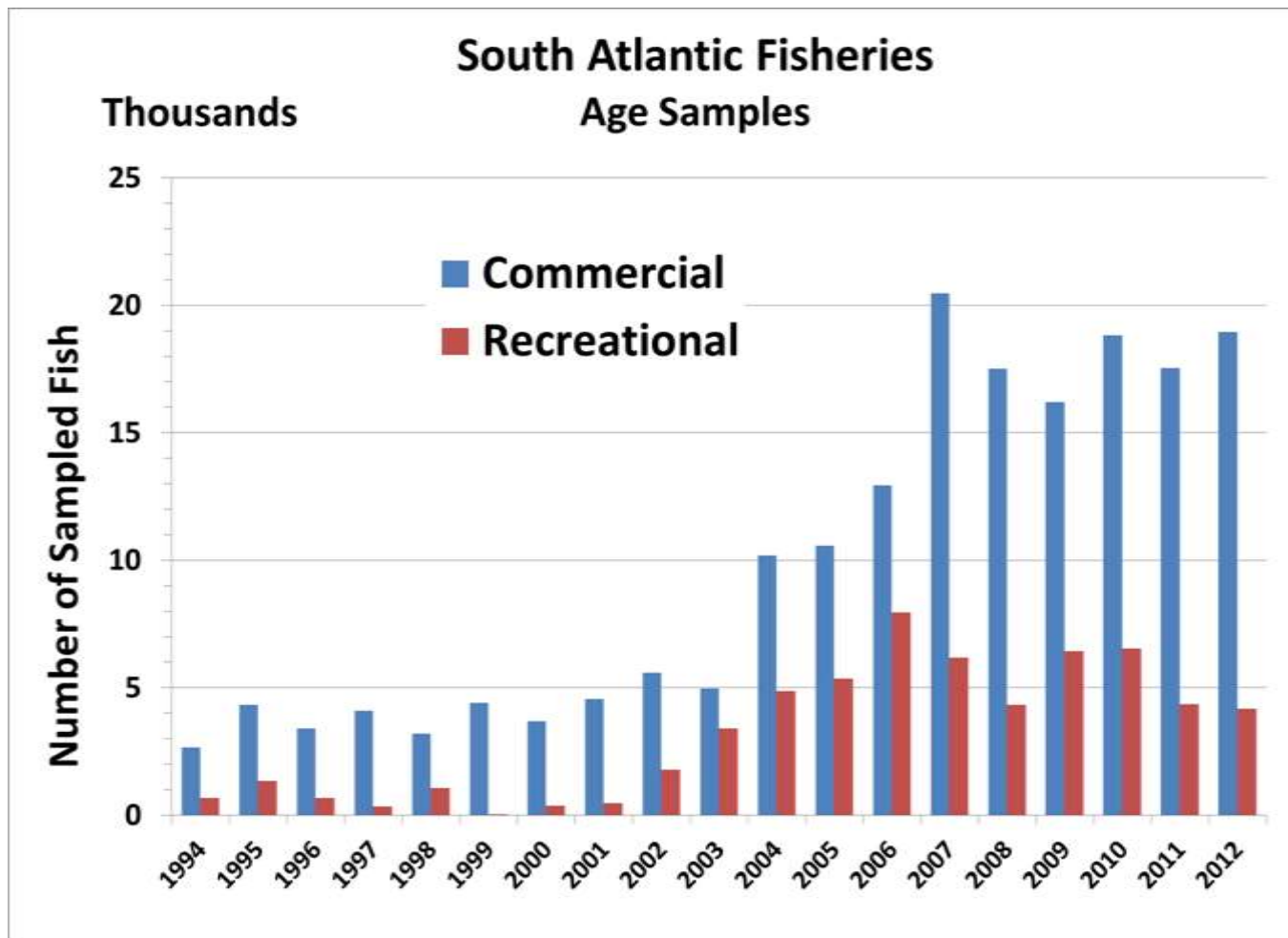
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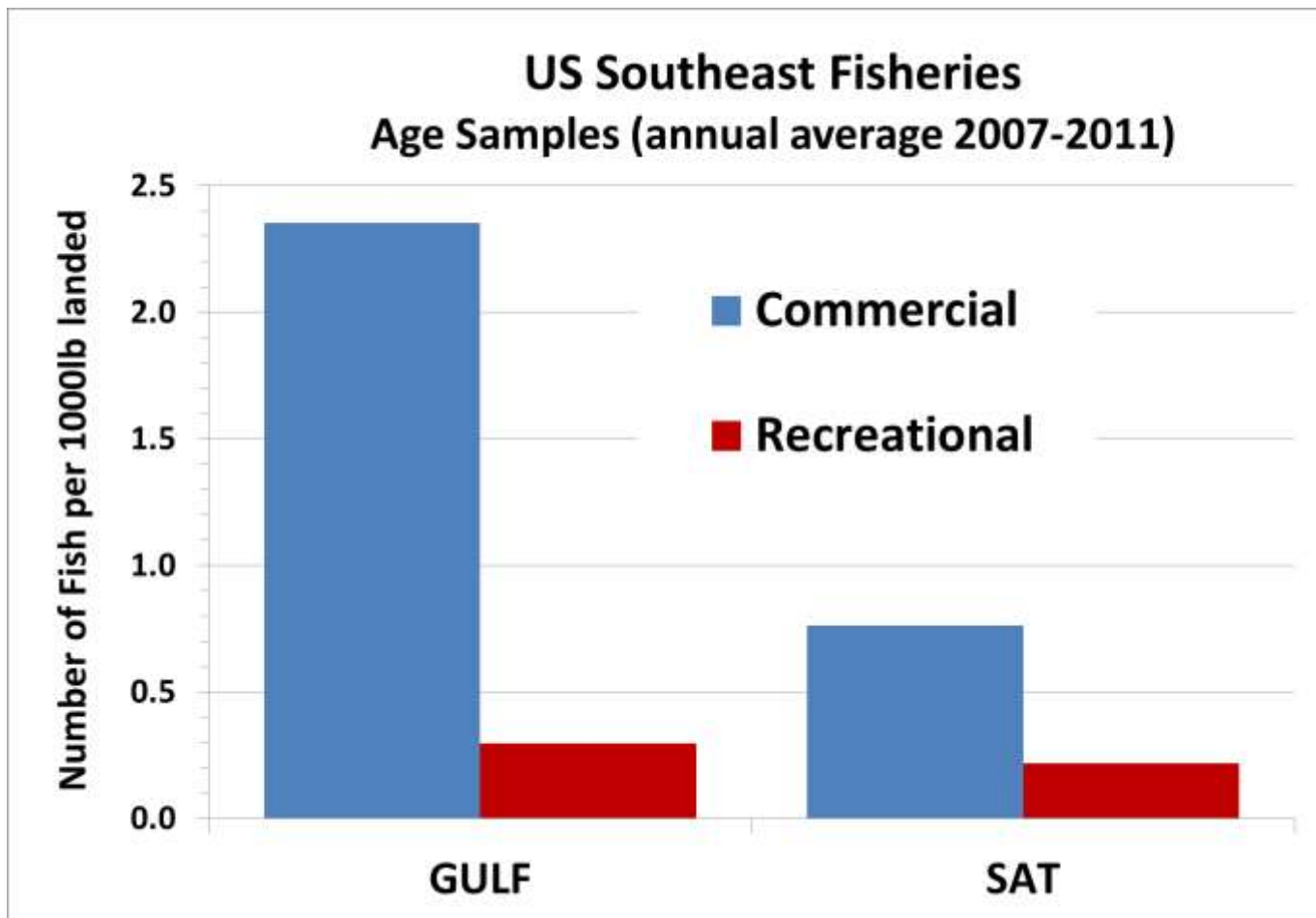


Landings of some stocks predominately recreational and other stocks predominately commercial

Fish Sampling: commercial vs recreational Size and Age/Biological Samples



Fish Sampling: commercial vs recreational Size and Age/Biological Samples



Fish Sampling: commercial vs recreational Size and Age/Biological Samples

Slide comparing S Atlantic and Gulf
Showing that Gulf has substantial samples from all rec sectors
While S Atlantic is primarily headboat samples
Thus need for emphasis on obtaining rec age samples from all sectors

Fish Sampling: commercial vs recreational Size and Age/Biological Samples

Slide comparing Gulf and S Atl rec ages by mode

I presume it will show that GulfFIN has produced relatively more samples for charter and private modes

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Major data collection issues

- Self-reported and incomplete landings
- Releases at sea
- Continental catch-effort
- Dockside biological sampling

Major data collection issues

self reported landings and incomplete

- Headboat survey
 - Pilot survey underway to test validation of captains' reports
- VI commercial landings (possible under-reporting of catch)
- PR commercial landings (incomplete reporting)
 - Establish statistical surveys to validate landings per trip and estimate total trips
- Need MRIP sampling in the VI – pilot projects underway

Major data collection issues

releases at sea

- Develop programs / systems to obtain observations on releases by species
- Obtain biological samples of releases from major fisheries

Major data collection issues

vessel reports – spatial and temporal resolution

- Many SE demersal species appear to have low levels of motility and vessels fish over broad areas and multiple days
- Shift to finer scale information
 - Pilot program for electronic logs to be tested beginning within the next year

Major data collection issues

dockside biological sampling

- Continue work to standardize approaches within and across programs
- ensure adequate sampling of all major fisheries including the recreational and HMS fisheries
- Establish sampling of U.S. landings of HMS fisheries

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Data Collection Programs

Fisheries Statistics Division

- Formed in May 2010
- Heavily loaded / overloaded but hoping to expand capabilities
 - 6 FTEs capable of analysis / perhaps high level data management
 - 4 more than fully occupied with SEDAR, ICCAT and SERO/Council support
 - 1 research on sampling efficiency and estimation
 - 1 fully occupied with ACL monitoring
 - Little time for e-logs, warehouse data maintenance, system efficiency, new programs
 - Increase in number of assessments while losing positions
- Focusing on automation so that personnel can shift to quality control and analysis
- Limitations of support funding which is region specific

Data Collection Programs

SEFSC

- TIP (bio-sampling)
 - Needs standardization (begun) and monitoring
- FLS (commercial vessel reports)
 - Needs timeliness improvements
- SRHS (headboat)
 - Needs catch validation

Data Collection Programs

GulfFIN and ACCSP

- ACCSP
 - data processing, standards, quality, integration.
 - Landings data collection, aggregation and integration
 - Sampling collection funds limited and competed
 - Some states take over responsibility for support
- GulfFIN
 - Primary: MRIP and trip tickets, (basic landings statistics)
 - Limited data processing staff
 - States have different levels of compliance with standards
 - Secondary (threatened): headboat support, bio-sampling and age processing support

Data Collection Programs

states

- extensive support for landings data collection
 - Many changes in last 2 years for electronic reporting and new federal requirements
 - Extensive biological sampling
- Challenges
 - Differing capabilities and willingness to adapt to changes
 - Support for changes to state systems

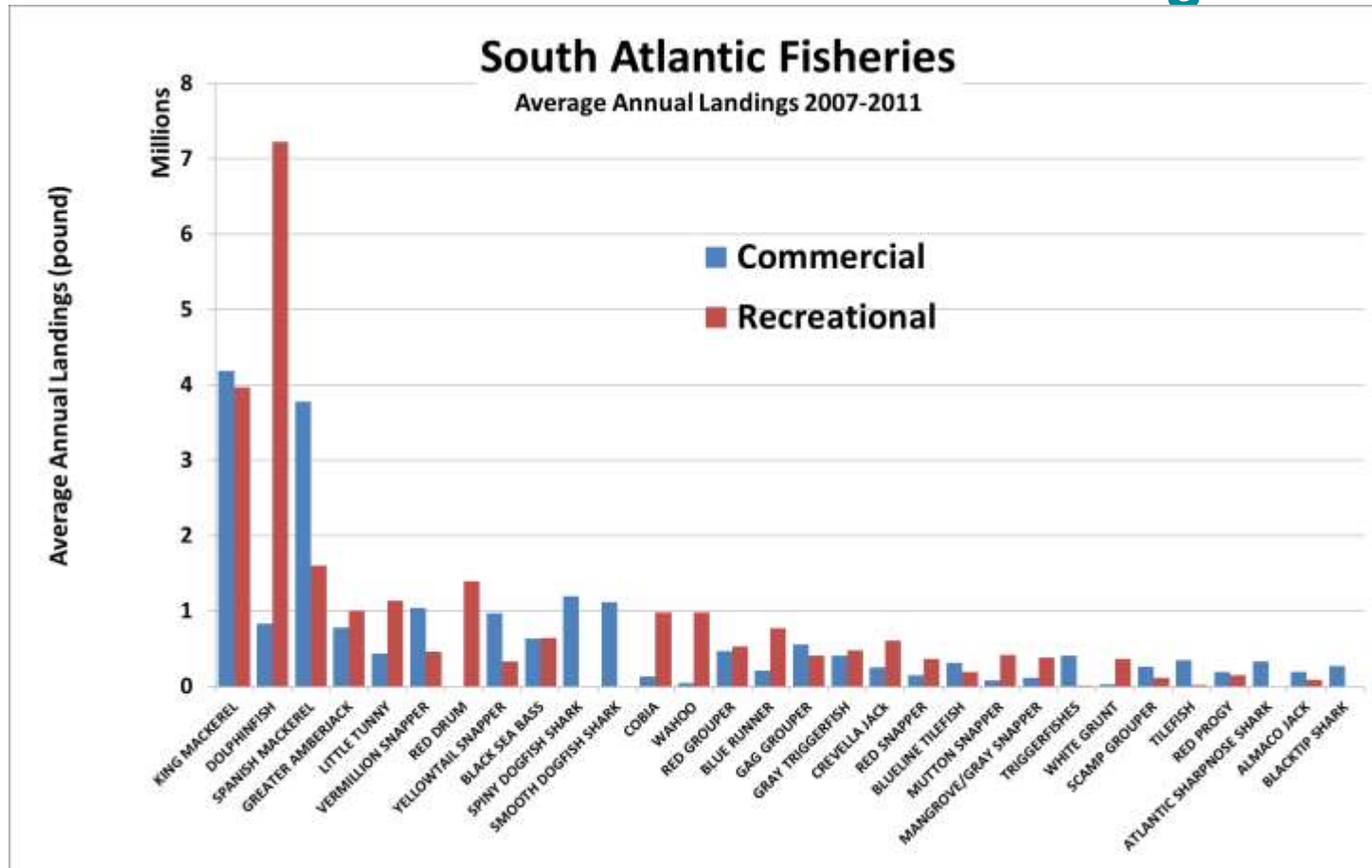
Data Collection Programs

Caribbean

- Governance – ie ability to hire (VI), changes in licensing (PR)
- VI sampling design
- PR –consistent sampling, may need design improvements
- Landings validation
 - Need statistical surveys
- Need bio sampling, ages, growth curves
 - Some progress in PR on maturity, initial support for aging

Southeast Fisheries

Commercial and Recreational Landings



Landings of some stocks predominately recreational and other stocks predominately commercial

Southeast Fisheries: importance of releases

Gulf of Mexico recreational landings and releases (n fish)

